

OCCUPATIONAL PROFILE

Information Technology

The Information Technology industry is the most highly skilled of Baltimore County's nine target industry clusters, with 72% of all jobs in this cluster classified as high-skilled occupations. While employment growth has occurred across the cluster, the most rapid growth occurred in middle-skilled jobs over the 2001-15 period, and they are projected to increase most rapidly through 2024.

The Information Technology industry relies heavily upon occupations related to:



Information & Support Services



Network Systems



Programming & Software Development

Information Technology Support Service Occupations include:

Administrative & Clerical

Technical

Business Management & Administration

Professional Sales & Service

INFORMATION TECHNOLOGY CAREER CLUSTERS

This section provides examples of the entry-, middle-, and highly-skilled Information Technology and related occupations in highest demand among employers in Baltimore County. The data are categorized by "Information Technology Career Clusters" – groups of occupations in the same field of work that require similar skills – which can be used to help focus educational plans towards obtaining the necessary knowledge, competencies, and training for success in one of many Information Technology career options.

Information Technology Occupations At-A-Glance

- 72% of all jobs in this cluster can be classified as high-skilled jobs, with 59% of employment in the computer and mathematical occupational groupings: Information & Support Services; Network Systems; and, Programming & Software Development.
- Major areas of occupational employment include, Office and Administrative Support occupations, Management, and Business and Financial Operations occupations.

Information Technology

- The occupations in greatest demand within this cluster are led by high-skilled jobs: Software Developers, Applications; Software Developers, Systems Software; and Computer Systems Analysts. The largest middle-skilled occupation is Computer User Support Specialists.
- Outside of these three industry specific occupational groupings, employment is spread across a wide variety of career options ranging from middle-skilled Office & Administrative Support occupations to higher-skilled Business Management & Administration and Professional Sales & Service occupations.
- The Information Technology cluster's employment of middle-skilled workers increased significantly between 2001 and 2015, and those job opportunities are projected to increase most rapidly through 2024. Some occupations include:

Information & Support Services

Computer & Information Systems Managers
Computer User Support Specialists
Information Technology Support Workers, All Other

Network Systems

Network & Computer Systems Administrators
Computer Network Support Specialists
Information Security Analysts

Programming & Software Development

Software Developers, Applications
Computer Systems Analysts
Software Developers, Systems Software

Support Service Occupations: Technical, Administrative & Clerical, Management, Sales & Service

Administrative & Clerical Support occupations are foundational to this industry, with a mix of middle- and entry-skilled occupations. The Information Technology industry also needs workers with a range of skills for Business Management & Administration and other related professional and technical occupations:

Entry - Middle-Skilled

Secretaries and Administrative Assistants, Except Legal, Medical, & Executive
Office Clerks, General
Bookkeeping, Accounting & Auditing Clerks
Office & Administrative Support Workers, All Other

Middle - High-Skilled

Business Operations Specialists, All Other
Web Developers
Customer Service Representatives
Sales Representatives, Services, All Other

This cluster encompasses occupations across all of Baltimore County's priority industries. For a complete list of any of the in-demand occupations within these clusters, reference the Profile specific to the industry or occupation of interest.



Baltimore County's workforce, education and training systems are well aligned with the occupational needs of the region's Information Technology industry. More than three-quarters of this industry's employment is in Computer and Mathematical, Business and Financial Operations, and Office and Administrative Support occupations. With an extensive network of educational institutions offering expanded, non-traditional certificate training programs, the County is well-poised to grow a highly-skilled-talent pipeline to meet future demand.

Here are a few middle- and high-skilled occupations that...

KEEP US ON THE CUTTING EDGE OF TECHNOLOGY!

HIGH-DEMAND MIDDLE-AND HIGH-SKILLED OCCUPATIONS

Information & Support Services

Education & Skills:
Upon Entry: HS Diploma or equivalent / Some College, No Degree / Associates / Bachelors / Post-Secondary Certificate / Vocational Training / Professional Degree
Advancement: Industry-recognized credentials from vocational training, work experience

Computer Occupations, All Other (15-1199)

2016 Est. Emp.: 3,990 / Mean Wage: \$49.80

Occupational Titles and 2-Digit SOC Sub-Codes:

- | | |
|---|---|
| .01 - Software Quality Assurance Engineers & Testers | .07 - Data Warehousing Specialists |
| .02 - Computer Systems Engineers/Architects | .08 - Business Intelligence Analysts |
| .03 - Web Administrators | .09 - Information Technology Project Managers |
| .04 - Geospatial Information Scientists & Technologists | .10 - Search Marketing Strategists |
| .05 - Geographic Information Systems Technicians | .11 - Video Game Designers |
| .06 - Database Architects | .12 - Document Management Specialists |

Computer & Information Systems Managers (11-3021)

2016 Est. Emp.: 1,100 / Mean Wage: \$67.36

Computer User Support Specialists (15-1151)

2016 Est. Emp.: 1,090 / Mean Wage: \$25.53

Information Technology Support Workers, All Other (31-9099)

2016 Est. Emp.: 400 / Mean Wage: \$20.36

Network Systems /Programming & Software Development

Education & Skills:
Upon Entry: HS Diploma or equivalent / Some College, No Degree / Associates / Bachelors / Post-Secondary Certificate / Vocational Training / Professional Degree
Advancement: Industry-recognized credentials from vocational training, work experience

Network & Computer Systems Administrators (15-1142)

2016 Est. Emp.: 1,800 / Mean Wage: \$50.24

Network Systems Computer Network Support Specialists (15-1152)

2016 Est. Emp.: 1,020 / Mean Wage: \$36.37

Information Security Analysts (15-1122)

2016 Est. Emp.: 310 / Mean Wage: \$49.79

Programming & Software Development

Software Developers, Applications (15-1132)

2016 Est. Emp.: 2,400 / Mean Wage: \$47.93

Computer Systems Analysts (15-1121)

2016 Est. Emp.: 2,100 / Mean Wage: \$42.83

Software Developers, Systems Software (15-1133)

2016 Est. Emp.: 780 / Mean Wage: \$55.45

Support Service Occupations Technical, Administrative, Management, Sales & Service

Support Service Occupations (SSO's) are jobs that can be found across all industry sectors that are critical to the daily operation, administration and management of the business. Key SSO's to the Information Technology industry include **Administrative & Clerical Support, Business Management & Administration, Professional Sales & Service** and **Technical** positions. Office and administrative support occupations account for **11% of employment**, creating entry-points to any of the career clusters listed above, depending upon one's interests, skills and abilities.

Secretaries & Administrative Assistants, Except Legal, Medical & Executive (43-6014)

2016 Est. Emp.: 8,380 / Mean Wage: \$18.68

Office Clerks, General (43-9061)

2016 Est. Emp.: 5,840 / Mean Wage: \$15.65

Bookkeeping, Accounting & Auditing Clerks (43-3031)

2016 Est. Emp.: 3,870 / Mean Wage: \$21.32

Web Developers (15-1134)

2016 Est. Emp.: 820 / Mean Wage: \$22.60

Customer Service Representatives (43-4051)

2016 Est. Emp.: 8,350 / Mean Wage: \$17.63

Sales Representatives, Services, All Other(41-3099)

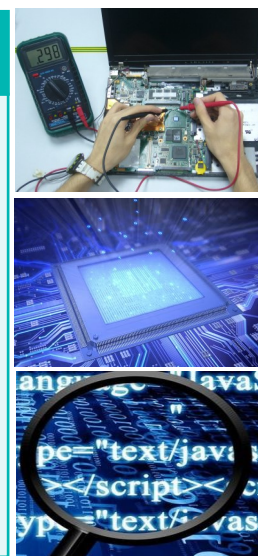
2016 Est. Emp.: 5,380 / Mean Wage: \$28.71

Business Operations Specialists, All Other (13-1199)

2016 Est. Emp.: 1,780 / Mean Wage: \$40.69

Electrical & Electronics Engineering Technicians (17--3023)

2016 Est. Emp.: 630 / Mean Wage: \$31.22



IN-DEMAND OCCUPATIONS

Information Technology

While employment growth over the past decade has occurred across the Information Technology cluster, middle-skilled jobs saw the most significant increases and are projected to increase most rapidly through 2024. The demand for middle-skilled job openings may indicate the need for expanded, non-traditional certificate training programs resulting in industry recognized credentials. Career progression requires work experience, post-secondary training and advanced professional and technical skills.

Information Support & Services

Computer Occupations, All Other (15-1199)

2016 Est. Emp.: 3,990 / Mean Wage: \$49.80

Occupational titles and sub-codes:

- .01- Software Quality Assurance Engineers & Testers
- .02- Computer Systems Engineers/Architects
- .03- Web Administrators
- .04- Geospatial Information Scientists & Technologists
- .05- Geographic Information Systems Technicians
- .06- Database Architects
- .07- Data Warehousing Specialists
- .08- Business Intelligence Analysts
- .09- Information Technology Project Managers
- .10- Search Marketing Strategists
- .11- Video Game Designers
- .12- Document Management Specialists

Computer & Information Systems Managers (11-3021)

2016 Est. Emp.: 1,100 / Mean Wage: \$67.36

Computer User Support Specialists (15-1151)

2016 Est. Emp.: 1,090 / Mean Wage: \$25.53

Information Technology Support Workers, All Other (31-9099)

2016 Est. Emp.: 400 / Mean Wage: \$20.36

Computer & Information Research Scientists (15-1111)

2016 Est. Emp.: 10 / Mean Wage: \$37.82

Network Systems

Network & Computer Systems Administrators (15-1142)

2016 Est. Emp.: 1,800 / Mean Wage: \$50.24

Computer Network Support Specialists (15-1152)

2016 Est. Emp.: 1,020 / Mean Wage: \$36.37

Computer Network Architects (15-1143)

2016 Est. Emp.: 640 / Mean Wage: \$58.17

Database Administrators (15-1141)

2016 Est. Emp.: 420 / Mean Wage: \$48.39

Information Security Analysts (15-1122)

2016 Est. Emp.: 310 / Mean Wage: \$49.79

Programming & Software Development

Software Developers, Applications (15-1132)

2016 Est. Emp.: 2,400 / Mean Wage: \$47.93

Computer Systems Analysts (15-1121)

2016 Est. Emp.: 2,100 / Mean Wage: \$42.83

Software Developers, Systems Software (15-1133)

2016 Est. Emp.: 780 / Mean Wage: \$55.45

Computer Programmers (15-1131)

2016 Est. Emp.: 620 / Mean Wage: \$40.24

Technical Occupations

Below are some technical occupations requiring proficient knowledge of specific equipment, programs, and applications, or the support and maintenance of technological infrastructure.

Data Entry Keyers (43-9021)

2016 Est. Emp.: 980 / Mean Wage: \$17.37

Web Developers (15-1134)

2016 Est. Emp.: 820 / Mean Wage: \$22.60

Telecommunications Line Installers & Repairers (49-9052)

2016 Est. Emp.: 610 / Mean Wage: \$27.80

Electrical & Electronics Engineering Technicians (17-3023)

2016 Est. Emp.: 630 / Mean Wage: \$31.22

Graphic Designers (27-1024)

2016 Est. Emp.: 510 / Mean Wage: \$24.74

Telecommunications Equipment Installers & Repairers, Except Line Installers (49-9022)

2016 Est. Emp.: 490 / Mean Wage: \$25.11

Computer, Automated Teller & Office Machine Repairers (49-2011)

2016 Est. Emp.: 430 / Mean Wage: \$19.36

Computer-Controlled Machine Tool Operators, Metal & Plastic (51-4011)

2016 Est. Emp.: 150 / Mean Wage: \$22.26

Desktop Publishers (43-9031)

2016 Est. Emp.: 50 / Mean Wage: \$25.14

Word Processors & Typists (43-9022)

2016 Est. Emp.: No BCO data / Mean Wage: \$18.85

Support Service Occupations: Administrative, Management, Sales & Service

Locally specific data is difficult to estimate for employment numbers for occupations related to Information Technology. This cluster encompasses occupations across all of Baltimore County's priority industries; this profile highlights the key Support Service Occupations in highest demand among Baltimore County employers.

Administrative & Clerical

Secretaries and Administrative Assistants, Except Legal, Medical, and Executive (43-6014)

2016 Est. Emp.: 8,380 / Mean Wage: \$18.68

Office Clerks, General (43-9061) *

2016 Est. Emp.: 5,840 / Mean Wage: \$15.65

First-Line Supervisors of Office & Administrative Support Workers (43-1011)

2016 Est. Emp.: 5,350 / Mean Wage: \$29.50

Bookkeeping, Accounting & Auditing Clerks (43-3031)

2016 Est. Emp.: 3,870 / Mean Wage: \$21.32

Executive Secretaries & Executive Administrative Assistants (43-6011)

2016 Est. Emp.: 1,010 / Mean Wage: \$30.87

Office & Administrative Support Workers, All Other (43-9199)

2016 Est. Emp.: 520 / Mean Wage: \$19.23

Business Management & Administration

Business Operations Specialists, All Other (13-1199)

2016 Est. Emp.: 1,780 / Mean Wage: \$40.69

Managers, All Other (11-9199)

2016 Est. Emp.: 1,300 / Mean Wage: \$54.47

Sales Managers (11-2022)

2016 Est. Emp.: 840 / Mean Wage: \$70.45

Marketing Managers (11-2021)

2016 Est. Emp.: 430 / Mean Wage: \$66.78

Industrial Production Managers (11-3051)

2016 Est. Emp.: 240 / Mean Wage: \$57.26

(.01—Quality Control Systems Managers)

Professional Sales & Service

Customer Service Representatives (43-4051)

2016 Est. Emp.: 8,350 / Mean Wage: \$17.63

Sales Representatives, Services, All Other (41-3099)

2016 Est. Emp.: 5,380 / Mean Wage: \$28.71

First-Line Supervisors of Retail Sales Workers (41-1011)

2016 Est. Emp.: 4,820 / Mean Wage: \$21.55

First-Line Supervisors of Non-Retail Sales Workers (41-1012)

2016 Est. Emp.: 950 / Mean Wage: \$42.12

Sales Representatives, Wholesale & Manufacturing, Technical & Scientific Products (41-4011)

2016 Est. Emp.: 680 / Mean Wage: \$58.20

Sales & Related Workers, All Other (41-9099)

2016 Est. Emp.: 450 / Mean Wage: \$21.01

Information Technology Career Clusters were derived from O*NET Career Clusters and Standard Occupational Classifications (SOC). High-demand occupations with wages below the locally determined minimum mean wage are denoted with an asterisk (*).

